

During the month 31 Cautionary Signals have been ordered at the 43 Signal Stations on the Lakes and Atlantic coasts. Of this number, 22 have been justified by the fact of succeeding high winds. There were 4 partly justified or of doubtful necessity. The remaining 5 were not justified.

## NAVIGATION.

It appears that navigation was universally resumed, without ice-obstruction, before June set in on the Lakes and rivers.

*The extreme depth of water* in the Mississippi and its tributaries, is shown by the table on chart No. III. In the extreme upper and lower Mississippi and the upper Ohio, the lowest stage of water is seen toward the close of the month. But in the lower Missouri, it was otherwise, the water rising to its highest on the 25th, 28th, and 29th. In the central Mississippi, from Keokuk to Memphis, the highest water was recorded on the 29th and 30th.

*Ice in the North Atlantic.*—The ice-drift and icebergs in the North Atlantic have been, as also noticed in the last Review, unusually large and late. During the whole month of June, vessels making Canadian and American ports, were in jeopardy from ice-obstructions. In the early part of June the steamer Golden Horn, in latitude  $47^{\circ} 33'$ , and longitude  $49^{\circ} 30'$ , was detained ten days amid ice-fields and icebergs. On the 11th, the steamship State of Nevada, latitude  $43^{\circ} 23'$ , longitude  $47^{\circ} 26'$  came in collision with a large iceberg, staving in fore-castle head and damaging her plates considerably. June 24th, the steamship City of Brussels, in latitude  $42^{\circ} 25'$ , longitude  $49^{\circ} 18'$ , and on June 22d, the steamship State of Louisiana, in latitude  $42^{\circ}$  and  $43^{\circ}$ , and longitude  $48^{\circ}$  and  $49^{\circ}$ , passed large icebergs. On the 21st, the steamer Bermuda found the Straits of Belle Isle completely blocked with ice, and had to steer 175 miles to the southeast to get clear, but was still embayed in the ice for a considerable time. The steamship Scandinavian, while off the coast of Newfoundland, on the 29th of June, sighted no less than 100 icebergs, many of them of monstrous size. The steamship Caspian, which touched at St. Johns on July 1st, was five days among the icebergs, and previous to that day, steamships could not get to St. Johns on account of ice-obstructions.

## TEMPERATURE OF THE WATER.

The details of water temperatures appear on the table in lower right-hand corner of Chart No. II.

The least thermometric variations in the water on the Atlantic coast are at Eastport, Maine, and Portland, Maine,— $5^{\circ}$  to  $3^{\circ}$  respectively. The greatest range is at Wood's Hole, Massachusetts, where it is  $16^{\circ}$ . On the Lakes, the monthly range of temperature has been about  $11^{\circ}$ . In the interior rivers it has been from  $9^{\circ}$  to  $12^{\circ}$ . The greatest variation reported is  $25^{\circ}$ . at Duluth.

## ATMOSPHERIC ELECTRICITY.

*Thunder storms.*—This item is noticed in part on page 4, as many of the local storms, there recorded, were attended by electrical phenomena. Thunder storms were reported at one or more stations every day in June, except on the 9th. After the middle of the month, they became quite general over the whole country. None were reported in New England before the 7th.

*Auroras*.—The principal auroras were those recorded on the 3d, in New York and Pennsylvania; on the 6th, in Vermont, Massachusetts, New Hampshire and Connecticut; on the 1st, 7th, 8th and 10th, in New York; on the 2d, in Michigan; on the 4th, in New York and Iowa; on the 24th, in Wisconsin and Iowa; on the 27th, in Iowa; on the 17th, in Vermont; on the 20th, in Ohio and Pennsylvania; on the 30th, in New York and Wisconsin.

### OPTICAL PHENOMENA.

(1) *Solar Halos* were less frequently observed than usual. The chief phenomena of the kind reported were as follows: on the 3d, in Kentucky; 4th, in Iowa, Nevada and New Hampshire; 5th, in Maryland, Massachusetts, New Hampshire, New York and Rhode Island; 6th, in Illinois, Massachusetts, New York and Vermont; 7th, in Iowa, Nebraska and New York; 8th, in Maryland, New York and Vermont; 9th, in Massachusetts, New Hampshire and Vermont; 10th, in New York and Pennsylvania; 11th, in New York; 13th, in Illinois; 14th, in Kansas and New York; 16th, in Tennessee; 17th, in Iowa, Kansas, New Hampshire, New York and Tennessee; 19th, in New Hampshire and Virginia; 20th, in Nevada and Ohio; 22d, in Illinois; 23d, in New York; 24th, in New Hampshire and New York; 25th, in Kansas; 30th, in Illinois.

The solar halos of the 5th were very extensively observed, and reported as quite brilliant.

(2) *Lunar Halos* were also very few in number. The principal were as follows: the 5th, Massachusetts; 7th, Colorado; 8th and 9th, New York; 11th, South Carolina; 12th, Iowa; 14th, Ohio; 15th, Pennsylvania; 17th, Ohio and Virginia.

(3) *Mirage*.—Only one mirage was noted. This was on the 7th and 19th, at Ellinwood, Kansas.

(4) A *Lunar Rainbow* was reported at Clarksville, Texas, on the 19th., and also at Buffalo, on the 24th.

### MISCELLANEOUS PHENOMENA.

(1) *Natural History*.—Under this head, the following items are of note:

*Grasshoppers*.—At Denver, Colorado, about the middle of June, grasshoppers were reported leaving in all directions. At Leavenworth, on the 11th, they were reported flying north and northwest, and were all gone by the 13th. Grasshoppers left Iowa on the 18th. In Kansas, they were seen going northeast on the 3d, and northwest on the 12th. In Nebraska, going north from the 10th to the 17th. Millions are reported drowned by the heavy rains in the Missouri valley. Grasshoppers were very bad in New Mexico, where distressing drought also prevailed.

*Locusts*.—At Plattsmouth, Neb., immense swarms of locusts moved north, northeast, and northwest, from the 13th to the end of the month. The river-observer there says: "Vast quantities of locusts were seen flying over from the 15th to the 25th of June, inclusive, except the 19th, 20th and 21st. The line was from 100 to 150 miles in width and from one-quarter to one-half mile in depth. As only a few descended, no serious damage resulted." They seem to have floated along in the prevailing wind. Locusts were at Ellinwood, Kan., on the 17th.

*The Colorado Beetle or Potato Bug* was in large quantities in Waupaca and Waushara counties, Wis., during the month, and in Hunterdon county, N. J. It was also reported in New York.

(2) *Forest Fires*.—In Dutchess county, N. Y., on the 19th; near Denver on the 18th, 24th and 25th; in St. Lawrence county, N. Y., from the 13th to 21st.

(3) *Polar Bands* at Buffalo on the 3d and 4th.

(4) *Meteors* at Albany, on the 24th; at Shreveport on the 4th and 21st; on the 21st at Lyndon, Ill.; also near Detroit, one was observed; on the 23d and 30th at New York city; brilliant one on the 24th at Trenton, N. J.; and on the 28th at Weidon, N. C.